DOCUMENT RESUME

ED 147 733 CG 012 072

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TITLE The Measurement and Correlates of Career Decision Making.

SPONS AGENCY National Inst. of Education (DHEW), Washington, D.C.
PUB DATE Aug 77
NOTE 30p.; Paper presented at the Annual Meeting of the American Psychological Association (August 26-30, 1977, San Francisco, California)

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EDRS PRICE MF-$0.83 HC-$2.06 Plus Postage.
DESCRIPTORS *Attitudes; Career Choice; *Cognitive Style; *Decision Making; Individual Psychology; *Measurement Instruments; Personality; Problem Solving; Research Projects; *Sex Role; Undergraduate Students; Vocational Development

ABSTRACT

This paper presents a theoretical framework for understanding career decision making (CDM); introduces an instrument, Assessment of Career Decision Making (ACDM) to measure CDM with college students; and presents correlational data on sex role and cognitive style factors hypothesized to influence CDM. The ACDM, designed to measure the Tiedeman and O'Hara model of CDM, contains the following scales: (1) Decison Making Style; (2) Decision Making Task-College (DMT-C); (3) Decision Making Task-Major (DMT-M); and (4) Decision Making Task-Occupation (DMT-O). Subjects were undergraduate students. Instrumentation utilized included the ACDM and various attitude and cognitive measures. An analysis of variance was performed. Results indicate the following: (1) DMT-M and DMT-O correlate highly while DMT-C correlates less; (2) the influence of academic class and decisional status are significant, while the magnitude of effect of each is different; (3) correlations between sex, sex role attitudes and cognitive styles, and DMT scales are low. These results support the Tiedeman and O'Hara model, and suggest that the ACDM is an effective measure of this model. This study implies that: differential counseling by sex is contraindicated in CDM; no direct relationshp exists between sex role attitudes and CDM; and ACDM is a useful counseling aid. (Author/JLL)

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The Measurement and Correlates of Career Decision Making*

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* Paper delivered by the second author as part of a symposium entitled "Factors Influencing Career Decision Making", at the American Psychological Association Convention, San Francisco, August, 1977.

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The Measurement and Correlates of Career Decision Making

Introduction

The purpose of this paper is to present a theoretical framework for understanding career decision making (CDM); to introduce an instrument to measure CDM for use with college students; and to present correlational data on sex role and cognitive style factors hypothesized to influence CDM.

The Nature of Career Decision Making

Career decision making can be conceptualized from a number of different points of view. Since 1960, vocational theorists have advanced models of career decision making, employing concepts from psychological decision theory and developmental psychology.

Of the six theories discussed by Jepsen & Dilley (1974) this paper presents an overview of the theory proposed by David Tiedeman and his associates (Tiedeman, 1961; Tiedeman & O'Hara, 1963; Miller & Tiedeman, 1972; Tiedeman & Miller-Tiedeman, 1975). The Tiedeman (et al.) approach to career development contains a view of human beings as responsible for their behavior and capable of choosing through purposeful action. Life confronts the individual with discontinuities of experience, which are environmentally caused by the nature of the structure of society. These discontinuities are new physical and social environments currently experienced or anticipated by the individual (e.g., the college environment). These environments present the individual with problems to be resolved; that is, society's expectations for the resolution of the CDM tasks confronting the individual at that stage of one's development (e.g., choice of major and occupation). Effective resolution of each CDM task gradually increases one's control over one's own behavior and environment. This leads to a greater sense of agency, owning of responsibility for

one's behavior, and in turn, to further purposeful action as new discontinuities and their attendant CDM tasks are confronted.

The CDM tasks are resolved through a seven-stage psychological process involving the cognitive functions of differentiation and integration. The stages are described below, the first four of which are anticipatory or planning stages, and the last three are implementation, or action stages.

1. Exploration

This stage is marked by unrestricted exploratory considerations. It is characterized by generalized, vague concerns with little or no progress toward choice. Knowledge of self and the occupational world is a felt need, but the individual has developed no strategy or plan of action for satisfying this need. There is an absence or near absence of negative choices (exclusions of alternatives from the range of possibilities). This is accompanied by vague anxieties about the future.

2. Crystallization

This stage represents progress toward, but not attainment of choice. The individual recognizes alternative possible choices and at least some of the consequences of these alternatives. Conflicts are recognized; advantages and disadvantages are weighed; and the bases for a decision are being developed, at least implicitly. The process of narrowing down the range of possibilities through negative choices is operating. False steps and inappropriate earlier decisions are recognized and used as bases for further decision.

3. Choice

This stage represents a definite commitment with some degree of certainty to a particular goal. It is accompanied by expressions of satisfaction and relief for having made the commitment. The individual may focus on aspects of self which are evidence of an appropriate decision. This stage further represents a swing from the pessimism characteristic of the exploratory stage to a kind of naive optimism about the future. The individual usually expresses a singleness of purpose and an unswerving attitude of goal direction, as well as eagerness and impatience to reach the goal. Focus upon the consequences of the decision and further planning are not yet in evidence.

4. Clarification

This stage represents a process of closure in which the individual is involved in clarification and elaboration of the consequences of one's commitment, as well as in planning the details and next steps to be taken to follow through on the commitment. The individual is usually engaged in a process of elaboration and perfection of one's self-image and image of the future. Although planning and overt action to carry out the commitment is characteristic of this stage, the overt action itself may be delayed until the environmental conditions are appropriate for action.

5. Induction

This stage marks the beginning of the implementation of a decision; the point at which the individual comes into reality contact with a new environment. One begins the process of accommodation to a new group of people and a new situation in the living out of one's decision. The individual's primary mode of interaction is passive. One is hesitant and is looking for cues from others in the group to determine what the group's values and goals are, and what the group's expectations of one are. While there is a general defense of self and a giving up of aspects of self to group purpose, the individual needs to feel some level of acceptance of one's uniqueness by the group. Gradually, one identifies with the group through the assimilation of one's individual values and goals into the group's values, goals and purposes. This stage ends when a person becomes aware of being accepted by the group.

6. Reformation

In this stage the individual's primary mode of interaction is assertive rather than passive. One is highly involved in the group, enjoins the group to do better, and acts upon the group in order to bring its values, goals, and purposes into greater conformance with one's own values and goals (which have become somewhat modified during induction). One also acts upon the out-group to bring their view of one's identification with the in-group into greater consistency with one's own view. There is a strong sense of self, which is somewhat lacking in objectivity. At the same time, self is abandoned to solution and group purpose. The result of this stage is a modification of the group's values, goals, and purposes.

7. Integration

In this stage older group members react against the new member's force for change, which causes the individual to compromise or modify one's intentions. This results in a greater objectivity towards self and towards the group's purposes. A synthesis is achieved which both the individual and the group strive to maintain through collaborative activity. The individual is satisfied, at least temporarily, and one has an image of self as successful, while the group also considers one successful.

At any given time, the individual is in one or another of these seven stages with respect to several overlapping CDM tasks. For example, the college undergraduate is in the process of implementing the decision to go to college, and in some stage of planning with respect to decisions about major and occupation. Moreover, it is assumed that prior completed decisions and decisions in the process of implementation affect decisions in the planning stages. Finally, the seven-stage process is presumed to be ordinarily progressive, but the possibility of regression and recycling is recognized.

While this theory suggests an orderly and logical progression through the seven stages, it is recognized that individuals may differ with respect to how they make decisions. This recognition has led to the formulation of theories of decision making style.

Dinklage (1967) developed a classification of decision making styles whereby judges could reliably categorize high school students, based on discussions of their decision making in educational, vocational, and personal areas. Eight styles were defined: planning, intuitive, complaint, fatalistic, impulsive, delaying, agonizing, and paralytic. She found that students differed in the use of these styles within and across the three decision areas. She also found some differences in style by sex and by type of school the student attended. The planning style is viewed as the most effective style, while the intuitive style may sometimes be effective. The remaining styles are considered ineffective or counter-productive (Miller & Tiedeman, 1972).

The first author has collapsed these styles into three categories: Planning, Intuitive, and Dependent. These categories are based upon the degree to which the individual takes personal responsibility for decision making versus projecting responsibility outward toward fate, peers and authorities; and the degree to which the individual uses rational versus emotional strategies in decision making. These three styles are described as follows:

Planning

This style is characterized by the ability to recognize the consequences of earlier decisions for later decisions. It requires an extended time perspective in which several sequential decisions are viewed as a means-ends chain. The individual anticipates the need to make decisions in the future and prepares for them by seeking information about self and the anticipated situation. The individual's decisions are carried through deliberately and logically. They are effective to the degree that accurate information about the situation is acquired and the individual's self-appraisal is realistic. This style represents the ideal of the self-actualizing decision maker, one who is the architect of one's own future as one lives it.

Intuitive

As in the planning style, the intuitive decision maker accepts responsibility for decision making. The intuitive style, however, involves little anticipation of the future, information-seeking behavior, or logical weighing of factors. Rather, it is characterized by the use of fantasy, attention to present feelings, and an emotional self-awareness as the bases for decision making. Commitment to a course of action is reached relatively quickly, and its basic "rightness" is felt internally. Often the individual cannot state explicitly how he or she decided. This style is less likely to result in effective decision making than the planning style, due to fluctuations over time in the individual's internal state, and to limited capacity to accurately represent an unfamiliar situation in fantasy.

Dependent

Unlike the planning and intuitive styles, the dependent style is characterized by a denial of personal responsibility for decision making and a projection of that responsibility outside of self. The individual is heavily influenced by the expectations and desires authorities and peers have of him or her. One tends to be passive and compliant; to have a high need for social approval; and to perceive the environment as providing restricted or limited options. While this style may reduce the immediate anxiety associated with decision making, it is likely to ultimately result in lack of fulfillment or personal satisfaction.

This theory of decision making stages and styles provides the basis for the design of the instrument described in the next section.

An Instrument to Measure CDM

The first author's dissertation (Harren, 1965, 1966) was a construct validity study designed to empirically test part of the Tiedeman and O'Hara decision making paradigm. The author constructed a structured sample Q-Sort instrument to represent the four stages of the career decision making (CDM) process -- Exploration, Crystallization, Choice, and Clarification, and two CDM tasks, Major and Occupation. Male college students responded to the Q-Sort items according to their relevance to self on a 9-point, forced distribution scale (from "most like me" to "least like me"). Without any prior knowledge of the theory, students tended to sort the items in ways consistent with the hypothesized, a priori categories derived from the theory. Through the use of factor analytic and analysis of variance procedures, the stages

postulated by Tiedeman and O'Hara were demonstrated to exist and to be relatively factorially discrete, thus lending support to the theory.

The next step involved adapting the instrument for use as a criterion measure to evaluate counseling. The instrument was changed from its Q-Sort format to a simple checklist format, and a new, weighted scoring procedure was designed. This scoring procedure yields a score for Major and a score for Occupation and a composite score representing how far along the continuum of the CDM process the student has advanced. The resulting instrument was called the Vocational Decision-Making Checklist (VDC).

Recent work in modifying and extending the instrument (Harren, 1976, 1976a) has resulted in a change of title to the Assessment of Career Decision Making (ACDM). In the present instrument, the original scales have been lengthened to increase reliability; the Implementation Period, with its three stages, Induction, Reformation, and Integration, have been utilized to assess the student's progress in "living-out" the decision to go to college; and three scales were added to assess decision making styles, Planning, Intuitive, and Dependent.

In summary, the ACDM contains the following scales:

Decision Making Style: Planning, Intuitive, and Dependent

Decision Making Task - College: Induction, Reformation, Integration, and DMT-C Total (weighted score representing progress through the stages)

Decision Making Task - Major: Exploration, Crystallization, Choice, and Clarification; and DMT-M Total (as above)

Decision Making Task - Occupation: Exploration, Crystallization, Choice, and Clarification; and DMT-O Total

(The ACDM is available for limited use by researchers. Technical data on the statistical properties of the instrument as well as reviews of studies

in which the ACDM has been used are available by writing the first author.)

The Assessment of Career Decision Making (ACDM)

The ACDM, the instrument designed to measure the Tiedeman and O'Hara model of career decision making (CDM), is represented in Table 1. There are four main sections in the instrument. Section 1 measures the decision stages which occur in the planning phase regarding deciding on a college major. Each stage has ten items to which the respondent answers by "agree" or "disagree". A representative item from each stage is given in the table. The Decision Making Task score for Major (DMT-M) is calculated using two weighting systems. The first weighting consists of multiplying the sum of the number of endorsed items for each stage by 1, 2, 3, or 4 respectively. This insures that the DMT-M represents a progress in decision making score. As respondents "agree" to the items in the latter stages, their weighted scores will be higher, indicating further progress than respondents who answer the same number of items in an earlier stage. The second weighting is a correction for acquiesence in responding by dividing the total initial weighted score by the total number of endorsed items. Within this section of the questionnaire the forty items are randomly sequenced.

The Decision Making Task score regarding a future Occupation (DMT-O) and the Decision Making Task score regarding the past decision to go to college (DMT-C) are also represented in Table 1. The same general procedure as outlined above is used in computing the DMT-O score. The computation of the DMT-C differs from the previous two scores in that it is composed of only 30 items total instead of 40, since the implementation phase has only three stages (with 10 items representing each stage). Otherwise, the DMT-C score depicted in Table 1 is similar in construction and scoring to the other DMT scores. Finally, Table 1 gives a brief definition and sample item for each of the decision making style scales in the ACDM. These scales contain only seven items each. The score for each

style scale is the total number of "agree" items for that scale. In all, the ACDM consists of 131 agree-disagree items and takes approximately 20 to 25 minutes to complete.

The next section of this paper examines means by which the validity of the ACDM has been assessed. Following this, preliminary results are reported from the first year of a two year longitudinal study investigating the influence of sex, sex-role attitudes, and cognitive styles on career decision making; in which the ACDM is used as the primary process-outcome variable.

Initial assessment for the ACDM's validity can be conceptualized in terms of the following: Assuming that Tiedeman and O'Hara's model of CDM is correct, how well does the ACDM measure this process in college students? There are several different types of validity. In one sense the previous description of the ACDM and its relation to the model (Table 1) is a description of the instrument's content validity. Some degree of the ACDM's internal construct validity can be appraised by examining the intercorrelations among the DMT scores and decision making styles. The test-retest reliability of each of the scales is also reported as a necessary but not sufficient condition for their validity. The ACDM's concurrent validity is indicated by specifying particular relationships between the DMT scale scores and other variables. The specific relationships are predicted from theoretical propositions generated by the model and the other variables. The expected relationships: between the variables of academic class; indicating a decision; and sex; and the DMT scales are given in Table 2.

Correlates of Career Decision Making

After having satisfied, to some degree, the requirements of reliability and validity (data to be presented in the results section), the influence of sex, sex-role attitudes, and cognitive styles on career decision making can be investigated using the ACDM as the criterion. The major premise underlying the present

research is that the influence of sex roles on career decision making is mediated by a number of cognitive style variables. The design of the study takes into account the hypothesized linkage between these two sets of variables and career decision making. Table 3 presents the thesis of this study. The career decision making process is expected to be most directly influenced by cognitive styles; cognitive styles are expected to mediate the influence of sex-role attitudes; and sex-role attitudes are expected to mediate the influence of gender (male and female). This hypothesized ordering of variables affecting CDM is based on a review of the literature and on the believe that the changing attitudes towards sex role appropriate behavior may have diminished the effects of sex differences (gender) commonly reported in the literature in past years.

METHOD

Subjects

A computer generated, random mailing list of undergraduates at Southern Illinois University-Carbondale was obtained for this study. A letter was sent explaining the research project and offering three dollars for participation. This process was continued until a sufficient sample representing males and females for all four academic classes was achieved. Forty percent of those contacted completed all of the instruments, which took approximately two hours. A separate sample of 78 undergraduates completed the ACDM twice at a two-week interval (for course credit) in order to determine the test-retest reliability of the ACDM.

Instrumentation. The ACDM, the measure of the career decision making process and the decision making styles,has been discussed earlier. The Bem Sex Role Inventory (BSRI) (Bem, 1974) measures three self-attributed sex-role characteristics: femininity, masculinity, and androgeny. Two instruments were used to measure subjects' attitudes toward the sex-role appropriate behavior of men and

women's Attitudes Towards Women Scale (AWS) (Spence and Helmreich, 1972; Spence, Helmreich and Stapp, 1973); and the Attitudes Towards Masculine-Transcendence Scale (AMTS) (developed by Moreland and VanTuinan, 1976). The measures of cognitive styles includes the three decision making styles in the ACDM, and two additional instruments. The Cognitive Differentiation Grid (CDG) (Bodden, 1970; Bodden and James, 1976) measures the extent to which an individual uses a range of cognitive constructs in describing various occupations. The second instrument, the Paragraph Completion Method (PCM), a semi-projective device designed by Hunt (1971), measures conceptual level, a cognitive development construct, involving how one processes information and the degree of interdependence one experiences with one's environment.

Analyses. The concurrent validities for the DMT-M and DMT-O were each assessed independently by performing a three-factor (2 x 4 x 2) analysis of variance (ANOVA) with each scale as the dependent variable; and sex, class, and decision as the fixed effects factors. Since the cell sizes are unequal, the effects are not independent. Thus, the ANOVA was calculated using the regression method of least squares (Overall and Spiegel, 1969). For the three-factor ANOVA each main effect was adjusted for the other main effects. When the sex factor was found not to be significant, a two-factor ANOVA (class x decision) was computed using a hierarchical approach where class was unadjusted while decision was adjusted for class. The interaction was adjusted for, by both main effects. The decision variable was dichotemized by partitioning the entire sample into two groups. Group I consisted of those individuals who had indicated not having made a decision concerning their college major or future occupation. Group I also included those who had indicated a decision, but were not highly satisfied with their decision. Whereas, Group II consisted of only those individuals who expressed both having made a decision and being highly satisfied with that decision.

The concurrent validity of the DMT-C follows the same general procedure with one exception. In place of the dichotomous decision factor (i.e., Have you made a tentative choice of major?) which took into account satisfaction with the decision (i.e., How satisfied are you with your tentative choice of major?), a purely dichotomous satisfaction factor was used for DMT-C. Obviously, there is no dichotomous decision factor for DMT-C since all undergraduates have made the decision to attend college. Thus, their adjustment to college is determined by asking them to rate their degree of satisfaction with college (i.e., How satisfied are you at this college?). Group I consists of those reporting low satisfaction and Group II consists of those reporting high satisfaction with college.

The relationships between sex, sex-role attitudes and cognitive styles -- as they are theoretically posited to influence career decision making -- was analyzed by entering each set of variables, a set at a time, into a stepwise multiple regression equation. The influence of sex by itself was determined by entering it first. To what extent sex (gender) is modified by sex-role attitudes was determined by entering the set of sex-role attitude variables into this equation after entering sex. Finally, the mediation effects of cognitive styles on sex and sex-role attitudes was examined by entering the set of cognitive style variables into the equation last. This stepwise process was observed three times with each of the decision scales (DMT-M, DMT-O, and DMT-C) as the criteria. The replicability of the multiple-R in a new sample for the three final equations is a problem, since multiple regression is an optimizing procedure and thus capitalizes on chance error. There are several methods of cross validation. Wiggins (1973), after a review of theoretical and empirical comparison studies, suggests that the shrinkage formula approach has certain advantages over split-sample cross validation approaches. Thus, the expected shrinkage of the multiple-R was computed.

Of the variables in the regression equation, only the measure of conceptual level in the paragraph completion method is not objectively scored. Three teams of two raters each were trained to rate the PCM protocols. Each team rated approximately one-third of the sample and both members of an individual team rated all the protocols assigned to that team. Interrater reliability of the composite rating within a team was estimated by the Spearman-Brown formula based on the interclass correlation with the between variance included in the error term (Tinsley and Weiss, 1975). The interrater reliability coefficient was calculated for each team on successive sets of 20 protocols. Team 1 and team 2 had nine reliability coefficients each, while team 3 had ten. After examining the range of reliability coefficients within and among the teams, it was decided that any set of 20 protocols with an obtained reliability of less than .69 would be rescored by one or both members of the team in order to improve the reliability of the composite score.

RESULTS

Five hundred and ninety students participated in the testing sessions. The distribution by sex and academic class of the 578 completed useable sets of data is depicted in Table 4. The independent sample of undergraduates for the test-retest information on the ACDM consisted of 73 out of 78 who completed the ACDM at both time intervals.

The product moment correlations for the interrelationship among the ACDM scales are shown in Table 5. The DMT-M and DMT-O which both measure progress through the first four stages of the decision process correlate highly $r = .75$. On the other hand, DMT-C which is the only measure of the last three implementation stages, correlates much less with DMT-M and DMT-O. This same trend of relationship is seen in the association between degree of satisfaction with the respective decisions and the DMT scales. The 2-week test-retest reliabilities

are satisfactorily high. The relationship among the decision making styles suggests that they are distinct constructs. Again, the test-retest reliabilities are high.

The means of the cells for the two-factor ANOVA's for each of the DMT scales are depicted on graphs in Figure 1. When DMT-M was the dependent variable, both class ($df = 3,570$; $F = 6.4$; $p < .01$) and decision ($df = 1,570$; $F = 238.5$; $p < .01$) were significant. The class by decision interaction was also significant ($df = 3,570$; $F = 5.0$; $p < .01$). The ANOVA with DMT-O as the dependent variable also showed significant main effects of class ($df = 3,570$; $F = 10.4$; $p < .01$) and decision ($df = 1,570$; $F = 223.0$; $p < .01$). The interaction was not significant ($df = 3,570$; $F = 2.1$; $p > .09$). The DMT-C as dependent variable had comparable results. The class ($df = 3,570$; $F = 3.0$; $p < .05$) and satisfaction ($df = 1,570$; $F = 73.1$; $p < .01$) main effects were both significant while again the interaction was not ($df = 3,570$; $F = 1.3$; $p > .28$). In all three analyses the predictions from the theoretical model concerning the influence of academic class and decisional status were significant; however, the magnitude of effect for each of these factors is quite different. The calculation of Eta, which can be interpreted as the proportion of variance accounted for by each effect, depicts this consistent difference in magnitude of effects. The proportion of variance accounted for in DMT-M, DMT-O and DMT-C by academic class standing is 2, 4, and 1 percent, respectively. The proportion of variance accounted for in these same three scales by their respective decision and/or satisfaction factor is 28, 27, and 11 percent, respectively. Thus, class standing is considerably less important than decisional status.

The correlations between sex, sex role attitudes and cognitive styles and the DMT scales are given in Table 6. Overall, the correlations between these instruments and the DMT scales are low. In terms of sex role attitudes, only

the BSRI scale for masculinity consistently correlates with the DMT scales. The AMTS does to a lesser extent. Only the ACDM's three decision making styles within the cognitive styles matrix show consistent relationships to the DMT scales.

The interrater reliability coefficients for the Paragraph Completion Method were moderately high. Of the total 28 coefficients for the three teams, nine sets failed to pass the criterion for acceptance and were rescored. Following rescoring only three sets were still under criteria ($r = .53, .39, .25$) ($N = 60$) but it was decided to include them in this analysis.

The degree of influence that sex, sex role attitudes, and cognitive styles have on CDM is depicted in Table 7. In all three instances, with DMT-C, DMT-M, or DMT-O as the criterion, the relative influence of the sets of predictor variables appears to be somewhat constant and as predicted. The gender of an individual has no bearing at all on the CDM process, thus it is not mediated in any sense. Sex role attitudes alone exert a mild influence on CDM. The extent of influence ranges from four to six percent. When the cognitive styles of an individual are taken into account the independent influence of sex role attitudes only drops one to two percent. The proportion of total variance which can be accounted for with all the variables in the regression equation is 10, 9, and 13 percent for the DMT-C, DMT-M, and DMT-O scales respectively. The low degree of shrinkage for each multiple R^2 indicates these equations would change little when applied to a new sample.

Discussion. Perhaps the overall conclusion to be drawn from these results is that the theoretical propositions generated from the Tiedeman and O'Hara model, with respect to the other variables in the study, have been borne out. In fact, the proportions of independent variance contributed by each set of predictor variables in the criterion (Table 7) is uniformly consistent with the thesis of this study. Secondly, the data presented on the reliability and validity of

the ACDM suggest that the instrument is an effective measure of the Tiedeman and O'Hara model, and that the decision making style scales, added to the instrument, based on later revisions of the model by Tiedeman and Miller-Tiedeman (1972), have considerable promise as a mediating variable in influencing the career decision making process. These two conclusions, their implications, and caveats are elaborated below.

Comparing the major thesis of this study outlined in Table 3 with the proportions of variance reported in Table 7, it is clear that the first proposition that gender will have no effect on the CDM process, is affirmed. In no case did sex of subject correlate with the ACDM DMT Scales. The second prediction, that sex role attitudes would have some influence, but that this influence would be mediated by the greater influence of cognitive styles, was also affirmed. Moreover, the small reduction in R^2 for sex role attitudes when cognitive style was added to the prediction, suggests that these two sets of variables are relatively independent predictors of CDM. It should be pointed out, however, that of the three cognitive style measures, the CDG, the PCM, and the ACDM-Styles Scales, only the last measure of the set has made the major contribution to the prediction of CDM, as indicated by the correlations presented in Table 6. This may indicate a method difference, rather than a trait difference. That is, since the CDM styles and the CDM tasks are part of the same instrument, designed by the first author, the findings may be a function of instrumentation, rather than reflecting true trait differences. To check this alternative interpretation out, a multitrait-multimethod analysis is planned (Campbell and Fiske, 1959).

Further examination of Table 6 suggests some interesting exceptions to the general statement that sex role attitudes are only minimally related to CDM. The pattern of correlations for the BSRI-M and the AMTS, although slight in absolute magnitude, suggest that high masculine self-attributions or stereotypic attitudes toward masculinity, of male and female subjects, tend to be related

to slightly higher scores on the ACDM, DMT Scales. This is consistent with earlier work reported by Wachowiak (1973). Using the Gough Adjective Checklist, he found that for males improvement in counseling, as measured by the DMT-M scale, was significantly correlated with Dominance, Aggression, Heterosexuality, and Self Confidence, and negatively correlated with Abasement. While the evidence is admittedly flimsy, further investigation of the question is in order.

Overall, it is important to recognize that all of the predictor variables only accounted for a total of 9 to 13 percent of the variance in the criterion variables. The large amount of unexplained variance suggests that the CDM process is, indeed, complex, and that a host of other variables may influence this process.

With regard to the second conclusion, the utility of the ACDM, the evidence reported herein is favorable. In addition, further evidence on the statistical properties and the construct validity of the instrument is available (Harren, 1976a, 1977) but not reported here.[1]

At least two caveats need to be explicated. The first has to do with the implied assumption of causality in what has been said above, and the second has to do with the criterion-related validity of the ACDM.

The data reported here are correlational, Time 1 data from longitudinal project in progress. Conclusions regarding the causal relationships among the variables await analysis of Time 2 data to be collected this Fall. While the present data is as expected, until alternative explanations of the results can be ruled out, assumptions of causality cannot be inferred.

The second caveat has to do with data also not yet analyzed. While the data hypothesized to influence the CDM process, as measured by the ACDM are favorable,

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[1] For this information, as well as access to and permission to use the ACDM, contact the first author at the Department of Psychology, Southern Illinois University, Carbondale, Illinois 62901.

the "so-what" question can legitimately be asked. That is, "How do these variables affect the outcome of the CDM process? Do sex role stereotypic men and women tend to choose same-sex dominant occupations and eschew opposite-sex dominant occupations? How do cognitive styles affect the choice of major and occupation, either in terms of sex dominance or type of field, i.e., similar occupational clusters or job families?" At the completion of this project, we hope to be able to answer these questions.

Another "so-what" question can be asked. "What does this have to do with the everyday practice of the career counselor?" Again, while definitive answers await further research, at least some implications are suggested. The most important implication is that, as far as the CDM process is concerned, differential counseling according to sex of the client is contraindicated. The second implication is that, while sex role attitudes may be important, there appears to be no direct relationship with the CDM process. On the contrary, a greater influence is suggested by cognitive styles, particularly decision making styles. Perhaps counselors should pay greater attention to how people perceive, process and react to information about self and the world of work than to sex role attitudes. A final implication is that the Tiedeman and O'Hara model and the modified Tiedeman and Miller-Tiedeman styles may be a useful aid to the counselor in assessing the client; in determining differential interventions based on ACDM score patterns; and, even as a method of teaching decision-making concepts to students.

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Table 1

Assessment of Career Decision Making (ACDM)

I. Decision Making Task: College Major

Stage and Sample Item	Scoring System
Exploration: "I don't know how to go about choosing a major."	Sum x 1
Crystallization: "There are a number of majors which I have decided against."	Sum x 2
Choice: "I've decided what I will major in."	Sum x 3
Clarification: "Some of the advanced courses in my major look pretty hard."	Sum x 4

Divide by Total # of Agree → DMT-M

II. Decision Making Task: Future Occupation

Stage and Sample Item	Scoring System
Exploration: "Almost any career seems appealing to me."	Sum x 1
Crystallization: "I'm more certain of the fields I don't want than what I do want."	Sum x 2
Choice: "I'm pretty certain about the career I have chosen."	Sum x 3
Clarification: "I need to find out what jobs are available in my field."	Sum x 4

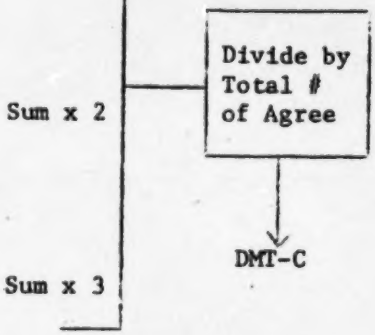
Divide by Total # of Agree → DMT-M

Table 1 (continued)

Assessment of Career Decision Making (ACDM)

III. Decision Making Task: Implementation of College Decision

Stage and Sample Item	Scoring System
Induction: "I don't feel that I really belong here yet."	Sum x 1
Reformation: "I'm not afraid to speak up in class when I don't agree with the instructor."	Sum x 2
Integration: "I'm pretty satisfied with the way things are working out for me here."	Sum x 3



IV. Decision Making Styles

Style, Definition and Sample Item
Planning: Accepts responsibility and uses anticipation and deliberation. "Before coming to college, I studied the college catalogues carefully."
Intuitive: Accepts responsibility and uses present feelings and self awareness. "I made my decision to go to college pretty much on the spur of the moment, without thinking much about it."
Dependent: Denies personal responsibility and influenced heavily by others. "My friends who were going to college had a lot to do with my decision to go."

Table 2

Concurrent Validity Predictions

I. Decisional progress toward college major and future occupation

1. DMT-M and DMT-O should increase with academic class.

2. DMT-M and DMT-O should be greater for those students who have indicated having made a satisfied decision concerning their major and occupation, respectively.

3. Sex as a variable is not predicted by the model. Sex is expected to have little influence, based on results of the earlier versions of the ACDM.

II. Progress in implementing the earlier decision to attend college

1. DMT-C should increase with academic class.

2. DMT-C should be greater for those who express satisfaction with their college experiences.

3. Sex as a variable is not predicted by the model. Sex is expected to have little influence, based on results of the earlier versions of the ACDM.

Table 3

Relationships Among Gender, Sex Role Attitudes, Cognitive Styles, and CDM

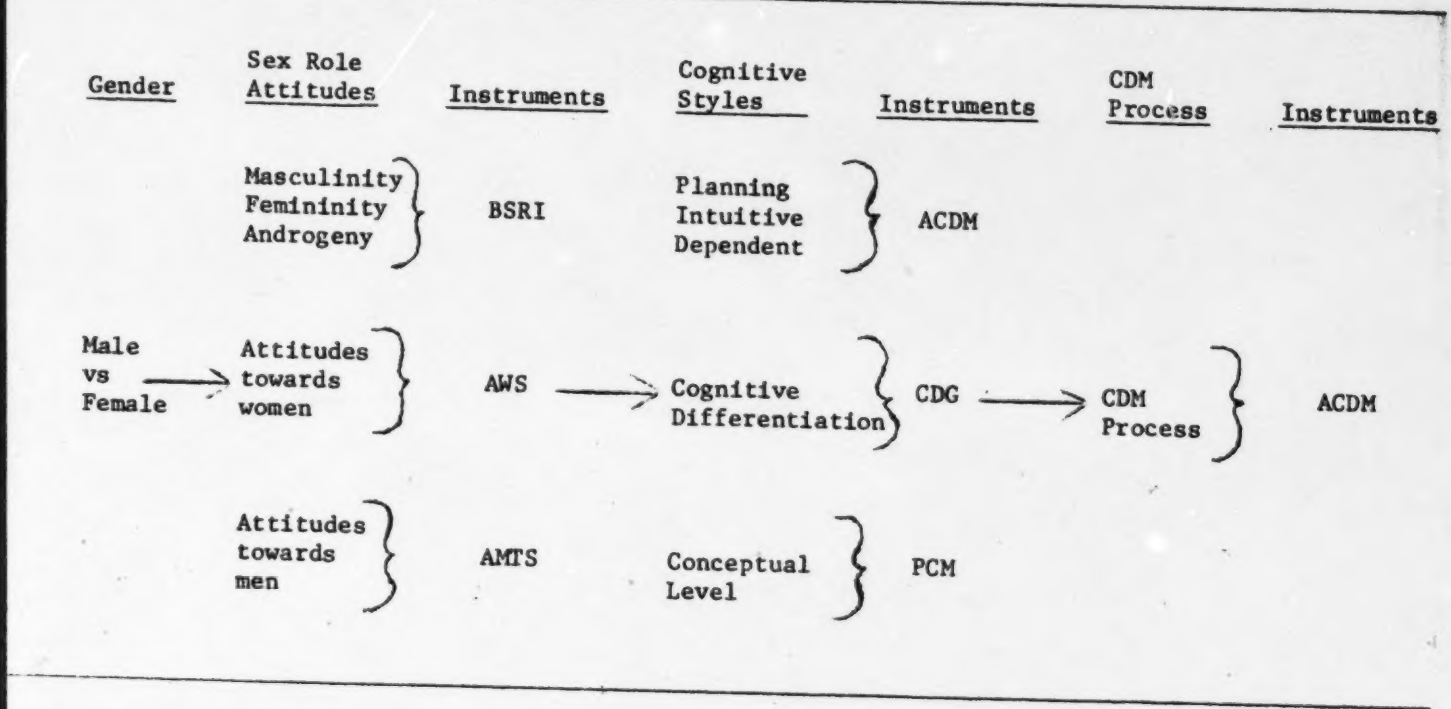


Table 4

Distribution of Total Sample by Sex and Class

	Freshman	Sophomore	Junior	Senior	Total
Male	89	67	70	66	292
Female	84	78	66	58	286
Total	173	145	136	124	578

Distribution of Total Sample by College Satisfaction and Class

Low Satisfaction with college	52	57	43	40	192
High Satisfaction with college	121	88	93	84	386
Total	173	145	136	124	578

Distribution of Total Sample by Satisfied Major Decision and Class

No decision or unsatisfied decision	73	50	30	32	185
Satisfied decision	100	95	106	92	393
Total	173	145	136	124	578

Distribution of Total Sample by Satisfied Occupation Decision and Class

No decision or unsatisfied decision	106	75	58	52	291
Satisfied decision	67	70	78	72	287
Total	173	145	136	124	578

Table 5

Relationship Among the ACDM Scales (N = 576)

Decision Making Process

	DMT-M	DMT-O	Sat. with College	Sat. with Major Dec.	Sat. with Occupational Dec.	Test - Retest Reliability (N=73)
DMT-C	.24	.37	.33	.32	.26	.78
DMT-M		.75	.19	.55	.43	.84
DMT-O			.20	.56	.54	.83

Decision Making Styles

	Intuitive	Dependent	Test - Retest Reliability (N=73)
Planning	-.33	-.09	.85
Intuitive		.18	.76
Dependent			.85

Table 6

Correlations for Sex Role Attitudes and Cognitive Styles with ACDM Decision Making Task Scales

	SEX	BSRI-M	BSRI-F	BSRI-A	AWS	AMTS
BSRI-M	-.26					
BSRI-F	.40	-.01				
BSRI-A	.47	-.75	.64			
AWS	.44	-.05	.23	.19		
AMTS	.30	-.05	.16	.14	.61	
DMT-C	.07	.15	.09	-.05	.04	-.04
DMT-M	-.01	.19	.02	-.13	-.06	-.13
DMT-O	.05	.19	.11	-.07	-.02	-.10

		Styles			Paragraph
	SEX	Planning	Intuitive	Dependent	CDG	Completion
Planning	.03					
Intuitive	.10	-.33				
Dependent	-.01	-.09	.18			
CDG	.06	.01	-.02	-.07		
Paragraph Completion	.07	.00	.00	.02	.00	
DMT-C	.07	.07	-.07	-.22	.04	.11
DMT-M	-.01	.16	-.17	-.15	-.01	.00
DMT-O	.05	.16	-.22	-.19	.06	.04

Table 7

Proportion of Independent Variance Accounted for by Sex, Sex Role Attitudes, and Cognitive Styles in Each Decision Making Task Scale

DMT for College Adjustment

R^2 for SEX	R^2 for Sex Role Attitudes	R^2 for Cognitive Styles	Total R^2	Expected Shrinkage of R^2
.00			.00	
.00	.04		.04	
.00	.03	.07	.10	.08

DMT for College Major

.00			.00	
.00	.05		.06	
.00	.03	.05	.09	.07

DMT for Occupations

.00			.00	
.00	.06		.06	
.00	.05	.08	.13	.11

Figure 1

Mean DMT Scale Scores by Academic Class and by Satisfied and Unsatisfied Decision